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September 27, 2002

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PATENT APPLICATION
Attorney's Docket No.: 1161.1027-013 (formerly BP94-03ACA3)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Maria S. Gawryl, Robert A. Houtchens and William R. Light

Application No.: 09/349,290 Group: 1653

Filed: July 7, 1999 Examiner: Gupta, A.

Confirmation No.: 6443

For: PRESERVING A HEMOGLOBIN BLOOD SUBSTITUTE WITH
A TRANSPARENT OVERWRAP

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CERTIFICATE OF FACSIMILE TRANSMISSION	
I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office:	
on	9-27-02
Date	Hollie Wakefield
Signature	
HOLLIE WAKEFIELD	
Typed or printed name of person signing certificate	

DECLARATION OF ROBERT A. HOUTCHENS, PH.D. UNDER 37 C.F.R. § 1.132

Box AF
Assistant Commissioner for Patents
Washington, D.C. 20231

I, Robert A. Houtchens, Ph.D., of 22 Briar Drive, Milford, Massachusetts 01757, declare
as follows:

- A. I received my Doctor of Philosophy degree from Colorado State University in 1980 in the field of biochemistry.
- B. I am Associate Director, Process Development, of Research and Development at Biopure Corporation, Cambridge, Massachusetts, where I have been employed since 1990. My *curriculum vitae* is provided in Appendix A, attached.
- C. My responsibilities include direction of research and process development, specifically with regard to scale-up of centrifugation, ultrafiltration, microfiltration and chromatographic separation processes associated with preparation of hemoglobin solutions. I also am responsible for optimization of

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current manufacturing processes, research into new manufacturing technologies, and scale-up and manufacture of chromatographic media associated with preparation of hemoglobin solutions, and packaging of deoxygenated hemoglobin solutions.

D. I have read U.S. patent application 09/349,290. I understand the application, the pending Office Action made Final and the issues relating to patentability presented by the Examiner in the Office Action made Final for the invention claimed in the patent application.

E. I have read and I understand U.S. 5,234,903, issued to Nho, *et al.*, Dodrill, *et al.*, "Barrier Coated Polyester Film for Healthcare Packaging," *Conference Paper presented at the "Polyester in Healthcare Packaging,"* pp. 1-17, and Kaiho, *et al.* an abstract of Japanese patent application JP 06249848 all of which were cited by the Examiner in the Office Action made Final dated April 5, 2002.

F. In reply to the Office Action made Final, I hereby state the following as my opinion, as one who is of at least ordinary skill in the art of packaging deoxygenated hemoglobin blood substitutes:

1. As described by Dodrill, the barrier data for silicon oxide containing laminates are highly variable because of the sensitivity of the silicon oxide material to flexing, and the data are not representative of actual package performance. Dodrill teaches that the silicon oxide film with the highest barrier properties described therein does not reliably maintain barrier properties under actual packaging conditions.
2. As amended, the independent claims of the above-captioned application include an oxygen barrier film overwrap that includes a transparent laminate material and a foil laminate material, wherein the transparent laminate material includes a flexed silicon oxide layer. In one

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embodiment, an automatic packaging device, such as the TJROMAT® automated sealing apparatus machine, is used to generate the oxygen barrier film overwrap of the independent claims. An automatic sealing apparatus subjects the overwrapping material used by the machine to flexing because of the numerous rollers over which the material is directed. Consequently, the transparent laminate material including a silicon oxide layer is flexed during the overwrapping process. Therefore, the use of an automatic sealing apparatus in conjunction with a transparent laminate material that includes a silicon oxide layer produces an oxygen film overwrap that includes a transparent laminate material including a flexed silicon oxide layer.

3. Based on the teachings of Dodrill, one of ordinary skill in the art would not expect to be able to preserve a deoxygenated hemoglobin blood substitute comprising maintaining the deoxygenated hemoglobin blood substitute in an oxygen barrier film overwrap that includes a transparent laminate material that includes a flexed silicon oxide layer.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information or belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and that such willful false statements, if made, may jeopardize the validity of the application or any patent issuing thereon.

Robert A. Houtchens, Ph.D.
Robert A. Houtchens, Ph.D.

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Date